

REMARKS

Claims 1, 2, 5-11 and 13-19 presently appear in this case. These claims define novel and unobvious subject matter under Sections 102 and 103 of 35 U.S.C., and therefore should be allowed. Applicant respectfully requests favorable reconsideration, entry of the present amendment, and formal allowance of the claims.

Amendments to the Claims

In claim 1, the recitation " $0 \leq R(Ca) < 0.15$ " includes the following embodiments:

- (i)  $R(Ca) = 0$ , therefore,  $d=0$  or
- (ii)  $R(Ca) \neq 0$ , so that  $d \neq 0$ .

Namely, the formula  $X_aMg_bFe_cCa_dO_e$  (1) can be substantially represented by the formula  $(X_2O_n)_{a/2}(MgO)_b(Fe_2O_3)_{c/2}$  corresponding to embodiment (i), or  $(X_2O_n)_{a/2}(MgO)_b(Fe_2O_3)_{c/2}$   $(CaO)_d$ , corresponding to embodiment (ii). Since, in embodiment (ii), the CaO component is essential, claim 1 has been amended to recite "A Mg-based ferrite material consisting essentially of  $X_2O_n$ ,  $MgO$ ,  $Fe_2O_3$  or of  $X_2O_n$ ,  $MgO$ ,  $Fe_2O_3$  ands CaO components."

The specification teaches that the ferrite materials as clamed herein consists essentially of  $MgO$  and  $Fe_2O_3$  components or of  $CaO$ ,  $MgO$  and  $Fe_2O_3$  components. This means that the formula:  $X_aMg_bFe_cCa_dO_e$  (1) can be substantially represented by the formula  $(X_2O_n)_{a/2}(MgO)_b(Fe_2O_3)_{c/2}$ . In formula 1,  $d=0$  and  $e$

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= (na/2) + b + (3c/2) or  $(X_2O_n)_{a/2}(MgO)_b(Fe_2O_3)_{c/2}$  or  
 $(X_2O_n)_{a/2}(MgO)_b(Fe_2O_3)_{c/2}$ .

The specification as filed at page 9, line 9 to page 10, line 13 teaches that the ferrite material claimed herein may contain components other than  $X_2O_n$ , CaO, MgO and  $Fe_2O_3$ .

It is respectfully submitted that the proposed claim amendments appropriately specify the values of a, b, c, d and e, as the limitation that  $(b+c/2)$  is between 0.10 and 0.85 clearly specifies the mole ratio of the components.

Claims 1 and 11 have been amended in conformance with the helpful suggestion of the Examiner.

Submitted herewith is a table showing the results of calculating a, b, c, d and e in formula (1). The mole ratios of each of these can be calculated by the amounts of raw materials used in each example. Based upon the data in the attached table, claim 18, which depends from claim 1, has been added. Claim 19 is a product by process claim to define the relationship of the novel ferrite and the novel process as claimed herein.

#### Interview Summary

Applicant's attorney wishes to thank Examiner Goodrow for the courtesies extended during the personal interview of June 24, 2008. During that interview it was agreed that amending claim 1 to incorporate the limitations of

claim 4, and amending claim 11 to incorporate the limitations of claim 12 would make the claims allowable over the art of record. Accordingly, these amendments have been made.

Rejections Under 35 U.S.C. 11c

Claims 1, 4, 11 and 15 are rejected under 35 U.S.C. 112, second paragraph, as failing to set forth the subject matter which applicants regard as their invention. Claim 1 is said to have the mol % of a, b, c and d and should recite the range of materials in the composition. Claim 4 should recite the field or the saturation magnetization. Claims 11 and 15 are said to include raw materials while the materials are limited to the compounds containing Mg, Fe, Ca and the element X.

This rejection is respectfully traversed. The claims have been amended in accordance with the Examiner's helpful suggestion. Claim 4 has been cancelled, so this rejection is moot with respect to claim 4.

Art Rejections

Claims 1, 2 and 4-17 are rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a), as obvious over Mano et al., US 5,538,656.

This rejection is respectfully traversed. The significant point of the ferrite claimed herein is that it is

a magnesium-based ferrite material consisting essentially of  $X_2O_n$ , MgO and  $Fe_2O_3$  components or of  $X_2O_n$ , CaO, MgO and  $Fe_2O_3$  components by a specific heat-treatment process. If the heat-treatment step is not conducted appropriately, the ferrite will contain a significant amount of magnetite,  $Fe_3O_4$  in the  $Fe_2O_3$ . The magnetite component will decrease the dielectric breakdown voltage of a ferrite. The ferrites disclosed in Mano contain a significant amount of  $Fe_3O_4$ , and, accordingly cannot attain a high dielectric breakdown voltage as that of the presently claimed ferrites. Mano discloses neither any technical information regarding a dielectric breakdown voltage, nor any requirement to obtain a higher dielectric breakdown voltage. A discussion of avoiding breakdown voltage problems using the ferrites claimed herein can be found in the specification as filed at page 10, line 4 to page 12, line 20. Accordingly, it is respectfully submitted that the presently claimed invention is neither disclosed in or obvious over, Mano.

In view of the above, it is respectfully submitted that the claims are now in condition for allowance, and favorable action thereon is earnestly solicited.

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Respectfully submitted,

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	MgO	Fe203			CaO			Additive									
	molar ratio	Formula weight	molar ratio	Formula weight	wt%	Formula weight	wt%	Formula weight	wt%	a	b	c	d	e	R(X)	b/(b+c/2)	R(Ca)
Example 1	20	40.30	80	159.69	1	56.08	Li2O	29.88	0.5	0.023	0.20	1.60	0.025	2.6	0.005	0.20	0.005
Example 2	20	40.30	80	159.69	1	56.08	Li2O	29.88	1.0	0.046	0.20	1.60	0.025	2.6	0.01	0.20	0.005
Example 3	20	40.30	80	159.69	1	56.08	Li2O	29.88	2.0	0.094	0.20	1.60	0.025	2.7	0.02	0.20	0.005
Example 4	10	40.30	90	159.69	1	56.08	Li2O	29.88	1.0	0.050	0.10	1.80	0.027	2.9	0.01	0.10	0.005
Example 5	20	40.30	80	159.69	1	56.08	Na2O	61.98	0.5	0.011	0.20	1.60	0.025	2.6	0.005	0.20	0.005
Example 6	20	40.30	80	159.69	1	56.08	Na2O	61.98	1.0	0.022	0.20	1.60	0.025	2.6	0.01	0.20	0.005
Example 7	20	40.30	80	159.69	1	56.08	Na2O	61.98	2.0	0.045	0.20	1.60	0.025	2.6	0.02	0.20	0.005
Example 8	20	40.30	80	159.69	1	56.08	Na2O	61.98	5.0	0.117	0.20	1.60	0.026	2.7	0.05	0.20	0.005
Example 9	20	40.30	80	159.69	1	56.08	Na2O	61.98	8.0	0.193	0.20	1.60	0.027	2.7	0.08	0.20	0.005
Example 10	20	40.30	80	159.69	8	56.08	Na2O	61.98	1.0	0.024	0.20	1.60	0.213	2.8	0.01	0.20	0.040
Example 11	20	40.30	80	159.69	15	56.08	Na2O	61.98	1.0	0.026	0.20	1.60	0.432	3.0	0.01	0.20	0.079
Example 12	15	40.30	85	159.69	1	56.08	Na2O	61.98	1.0	0.023	0.15	1.70	0.026	2.7	0.01	0.15	0.005
Example 13	10	40.30	90	159.69	1	56.08	Na2O	61.98	1.0	0.024	0.10	1.80	0.027	2.8	0.01	0.10	0.005
Example 14	20	40.30	80	159.69	1	56.08	SrO	103.62	0.5	0.007	0.20	1.60	0.025	2.6	0.005	0.20	0.005
Example 15	20	40.30	80	159.69	1	56.08	SrO	103.62	1.0	0.013	0.20	1.60	0.025	2.6	0.01	0.20	0.005
Example 16	20	40.30	80	159.69	1	56.08	SrO	103.62	2.0	0.027	0.20	1.60	0.025	2.7	0.02	0.20	0.005
Example 17	10	40.30	90	159.69	1	56.08	SrO	103.62	1.0	0.015	0.10	1.80	0.027	2.8	0.01	0.10	0.005
Example 18	20	40.30	80	159.69	1	56.08	Al2O3	101.96	1.0	0.014	0.20	1.60	0.025	2.6	0.01	0.20	0.005
Example 19	20	40.30	80	159.69	1	56.08	SiO2	60.10	1.0	0.023	0.20	1.60	0.025	2.7	0.01	0.20	0.005
Example 20	20	40.30	80	159.69	1	56.08	P2O5	141.94	1.0	0.010	0.20	1.60	0.025	2.6	0.01	0.20	0.005
Example 21	20	40.30	80	159.69	1	56.08	K2O	94.20	1.0	0.015	0.20	1.60	0.025	2.6	0.01	0.20	0.005
Example 22	20	40.30	80	159.69	1	56.08	TiO2	79.90	1.0	0.017	0.20	1.60	0.025	2.7	0.01	0.20	0.005
Example 23	20	40.30	80	159.69	1	56.08	V2O5	181.88	1.0	0.008	0.20	1.60	0.025	2.6	0.01	0.20	0.005
Example 24	20	40.30	80	159.69	1	56.08	Y2O3	225.81	1.0	0.006	0.20	1.60	0.025	2.6	0.01	0.20	0.005
Example 25	20	40.30	80	159.69	1	56.08	ZrO2	123.22	1.0	0.011	0.20	1.60	0.025	2.6	0.01	0.20	0.005
Example 26	20	40.30	80	159.69	1	56.08	Bi2O3	465.96	1.0	0.003	0.20	1.60	0.025	2.6	0.01	0.20	0.005
Example 27	20	40.30	80	159.69	1	56.08	La2O3	325.81	1.0	0.004	0.20	1.60	0.025	2.6	0.01	0.20	0.005
Example 28	20	40.30	80	159.69	1	56.08	Na2O	61.98	1.0	0.022	0.20	1.60	0.025	2.6	0.01	0.20	0.005
Example 29	20	40.30	80	159.69	1	56.08	Na2O	61.98	1.0	0.022	0.20	1.60	0.025	2.6	0.01	0.20	0.005